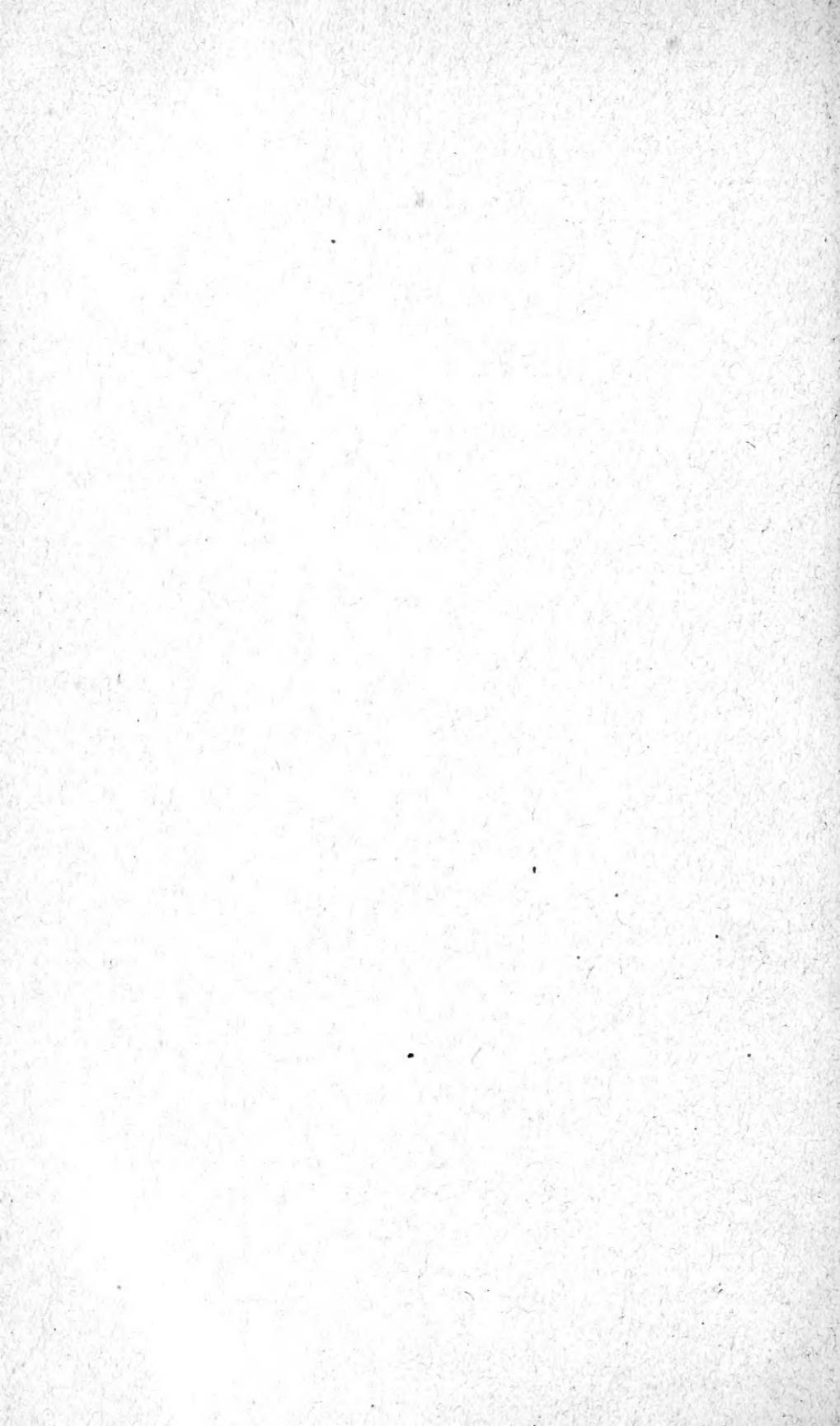






Rathbun, R





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**DREDGING STATIONS OF THE UNITED STATES FISH COMMISSION
STEAMER FISH HAWK, LIEUT. Z. L. TANNER COMMANDING, FOR
1880, 1881, AND 1882, WITH TEMPERATURE AND OTHER OBSERVA-
TIONS.**

Arranged for publication

By RICHARD RATHBUN.

In the summer of 1880, the headquarters of the United States Fish Commission were established at Newport, R. I., and the steamer Fish Hawk, then newly constructed, made its dredging and trawling trips from there, whenever the weather permitted. The field of explorations for the summer included Narragansett Bay, Sakonnet River, and the regions to the northward, eastward, and southward of Block Island. In September and the first part of October, three trips were made by the Fish Hawk to the inner edge of the Gulf Stream slope, between latitudes $40^{\circ} 05' 42''$ N. and $39^{\circ} 46'$ N., and longitudes $70^{\circ} 22' 06''$ W. and $71^{\circ} 10'$ W., in depths of 64 to 487 fathoms, resulting in the discovery of a new and exceedingly rich fauna, both as regards fish and marine invertebrates. On her passage to Washington in November, the Fish Hawk also trawled off the mouth of Chesapeake Bay, in depths of 18 to 300 fathoms.

During the summers of 1881 and 1882, the headquarters of the Commission were at Wood's Holl, Mass. As the shallow waters of this region had been quite fully explored by the Commission in 1871 and 1875, very little time was expended in work near land; but advantage was taken of all pleasant weather to still further investigate the rich faunal region of the Gulf Stream slope, discovered the previous year. Seven trips were made to this region, in 1881, between latitudes $39^{\circ} 40'$ N. and $40^{\circ} 22'$ N., and longitudes $69^{\circ} 15'$ W. and $71^{\circ} 32'$ W., in depths of 43 to 782 fathoms. A line of dredgings and trawlings, at intervals of about four miles, was made from off Noman's Land to the Gulf Stream slope, in order to connect the inshore with the offshore stations; and a few trips were also made in Vineyard Sound, Buzzard's Bay, and off Chatham, Cape Cod, on, and in the vicinity of, Crab Ledge. Cod trawl-lines were set on most of the outside trips, for the purpose of catching fish that would not enter the beam-trawl.

In 1882, five deep-water trips, were made to the same region, extending the area of dredgings considerably beyond its former eastern and western limits. A few hauls of the dredge and beam-trawl were taken in Vineyard Sound, and one trip was made to the one-hundred fathom line, off the eastern side of Cape Cod. The most eastern haul on the Gulf Stream slope for 1882, was in latitude $40^{\circ} 08'$ N. and longitude $68^{\circ} 45'$ W.; and the most western in latitude $39^{\circ} 31'$ N. and longitude $72^{\circ} 06'$ W.; the deepest haul was in 787 fathoms. Cod-trawls were set on two of the trips only.

The temperatures of the air were taken, in part, with a Jas. Green, in part with a Signal Service, thermometer; the temperatures of the bottom and surface waters were obtained by means of Negretti and Zambra deep-sea thermometers. The bearings are all magnetic. As the bearings and latitudes and longitudes indicate only the points at which the dredge or trawl was lowered upon the bottom, the direction of the drift of the vessel and the distance gone over in dredging and trawling have been given in most cases, to show the extent of the hauls. The figures in the column of "Drift" indicate the distance of the drift in miles. The abbreviations in the column of "Apparatus used" have the following significations: D., dredge; R. D., rake-dredge; O. D., oyster-dredge; T., trawl; O. T., otter-trawl; B. T., Blake-trawl; Tan., tangles; C. T., cod-trawl.

The New York fishing schooner, Josie Reeves, Capt. F. M. Redmond, employed by the Fish Commission to look for the tile fish (*Lopholatilus chameleonticeps*) in the neighborhood of the one-hundred fathom line, south of Martha's Vineyard, made five stations in that region, which for convenience sake have been given numbers in the regular series from 1145 to 1149, inclusive. She used cod trawl-lines and lobster-pots.

Dredging stations of the steamer *Fish Hawk* for 1880, 1881, and 1882.

Date.	Hour.	Latitude N.	Longitude W.	Locality.	Drift.	Depth fms.	Nature of bottom.		Temperatures.	
							Avg.	Surf.	Bottom.	
1880.										
770 Aug. 6	10 a.m.	○	✓	○	✓	○	Sand and shells	68.0	66.5	62.5 D.
771 Aug. 6	10.30	do	do	do	do	8½	Sand and shells	68.0	66.5	62.5 T.
772 Aug. 6	11.35	do	do	do	do	8	do	72.0	69.5	67.0 D.
773 Aug. 6	11.45	do	do	do	do	8	do	72.0	69.5	67.0 T.
774 Aug. 6	1 p.m.	do	do	do	do	10½	Sand, mud, shells	72.0	72.0	69.0 D.
775 Aug. 6	1.05	do	do	do	do	12	Gravel, sand, mud	79.0	72.0	68.0 T.
776 Aug. 7	9.45 a.m.	do	do	do	do	21½	Sand, shells	72.0	67.5	58.5 D.
777 Aug. 7	10.20	do	do	do	do	21½	Sand, shells, gravel	72.0	67.5	58.5 T.
778 Aug. 7	10.40	do	do	do	do	23	Gravel, sand, broken shells	76.0	70.0	58.5 T.
779 Aug. 7	11.05	do	do	do	do	22½	Gravel, sand, shells	78.0	68.0	57.5 D.
780 Aug. 7	11.30	do	do	do	do	18	do	79.0	69.0	57.5 T.
781 Aug. 7	12 m.	do	do	do	do	16	Sand	75.0	69.0	57.0 T.
782 Aug. 12	9.30 a.m.	do	do	do	do	16	Sand, gravel, broken shells	68.0	70.0	60.0 D.
783 Aug. 12	10.15	do	do	do	do	17½	do	70.0	70.0	55.0 T.
784 Aug. 12	10.50	do	do	do	do	20	Fine sand and broken shells	71.5	71.0	53.5 D.
785 Aug. 12	11.30	do	do	do	do	19½	Sand	72.0	71.0	54.5 T.
786 Aug. 12	2.35 p.m.	do	do	do	do	19	Mud and fine sand	74.0	71.0	53.5 D.
787 Aug. 12	3	do	do	do	do	19	do	74.0	71.0	53.5 T.
788 Aug. 13	10.40 a.m.	do	do	do	do	18	Fine sandy mud	70.0	71.0	54.0 D.
789 Aug. 13	11.05	do	do	do	do	17½	Sand and scallops	70.0	71.0	54.0 O. T.
790 Aug. 13	11.55	do	do	do	do	16	Fine sand	70.0	71.0	54.5 T.
791 Aug. 13	1.10 p.m.	do	do	do	do	20	Fine sandy mud	72.0	71.0	60.0 D.
792 Aug. 13	1.50	do	do	do	do	18	do	71.0	69.0	63.0 D.
793 Aug. 14	9 a.m.	do	do	do	do	19	Sand and broken shells	71.0	69.0	63.0 T.
794 Aug. 14	9.45	do	do	do	do	19	Fine sandy mud	71.0	69.0	63.0 D.
795 Aug. 14	10.25	do	do	do	do	19	do	70.0	69.0	63.0 T.
796 Aug. 14	11.00	do	do	do	do	19	do	70.0	69.0	63.0 D.
797 Aug. 14	11.40	do	do	do	do	16½	Soft mud and coarse sand	70.0	68.5	56.0 D.
798 Aug. 14	12.10 p.m.	do	do	do	do	12½	Sand, gravel, few large stones	71.0	66.0	59.0 D.
799 Aug. 14	12.30	do	do	do	do	13	do	70.0	67.0	61.0 D.
800 Aug. 16	11.35 a.m.	do	do	do	do	4	Sand	63.0	70.0	69.5 T.

Narragansett Bay.
Poplar Point Lights, N.N.W. 4 W., 24 miles.

Dredging stations of the steamer *Fish Hawk* for 1880, 1881, and 1882—Continued.

Serial number per num. Apparatus used	Date.	Hour.	Latitude N.	Longitude W.	Locality.	Drift.	Depth, f.	Nature of bottom.	Temperatures.		
									Air.	Surf.	Bottom.
801	Aug. 16	12.20 p. m.	o	"	Narragansett Bay; Poplar Point Lights, W. by N., $\frac{1}{4}$ miles.....	4 $\frac{1}{2}$	Mud.....	65.0	71.0	68.0	T.
802	Aug. 16	2.15			Hallway Rock, N. by E., $\frac{1}{4}$ of a mile.....	12 $\frac{1}{2}$	do.....	68.0	70.5	62.0	T.
803	Aug. 16	3.25			Hallway Rock, N. by E., $\frac{1}{4}$, $\frac{2}{3}$ miles.....	20	Fine sandy mud.....	67.0	69.0	60.0	D.
804	Aug. 17	11.15 a. m.			Off Newport, R. I. (Brown's Ledge); Cuttyhunk Light, NE. by E., $\frac{1}{4}$ miles.....	11 $\frac{1}{2}$	Rocks and sand.....	68.0	66.0	59.0	D.
805	Aug. 17	12.00 m.			Close to No. 804.....	11 $\frac{1}{4}$	Fine gravel.....	69.0	67.0	56.0	Tan.
806	Aug. 17	12.00 p. m.			Cuttyhunk Light, E. N.E., $\frac{7}{8}$ miles.....	12 $\frac{1}{2}$	do.....	70.0	69.0	60.0	D.
807	Aug. 17	12.50 p. m.			Cuttyhunk Light, NE. by E., $\frac{1}{4}$ E., $\frac{1}{4}$ miles.....	12 $\frac{1}{4}$	Fine gravel and stones.....	70.0	69.0	60.0	D.
808	Aug. 17	1.20			Cuttyhunk Light, NE. by E., $\frac{1}{4}$ E., 8 miles off Newport, R. I.; SW. of Brown's Ledge;.....	13	do.....	70.0	67.0	60.0	D.
809	Aug. 17	1.55			Cuttyhunk Light, NE. by E., $\frac{1}{2}$ miles.....	21 $\frac{1}{4}$	Fine sand.....	70.0	67.0	52.0	D.
810	Aug. 17	2.15			Cuttyhunk Light, NE. by E., $\frac{1}{2}$ miles.....	21	Fine sand and gravel.....	70.0	67.0	52.0	T.
811	Aug. 17	2.20			Off Newport, R. I.; W. of Brown's Ledge;.....	19 $\frac{1}{2}$	Fine sandy mud.....	69.0	67.0	53.0	D.
812	Aug. 18	11.30 a. m.			Off Block Island; Light, N.N.W., $\frac{1}{4}$ W., 20 miles.....	28 $\frac{1}{2}$	Sand.....	70.0	66.0	46.0	D.
813	Aug. 18	11.55			Block Island Light, N.N.W., $\frac{1}{4}$ W., 20 miles.....	28 $\frac{1}{2}$	do.....	70.0	67.0	46.0	T.
814	Aug. 18	1.00 p. m.			Block Island Light, N.N.W., $\frac{1}{4}$ W., 18 miles.....	27 $\frac{1}{2}$	Sand and gravel.....	72.0	72.0	46.0	T.
815	Aug. 18	2.15			Block Island Light, NW. by N., 17 miles.....	29	Fine sand.....	72.0	72.0	48.0	R.D.
816	Aug. 23	10.25 a. m.			Narragansett Bay;.....	8 $\frac{1}{2}$	Sand and broken shells.....	71.0	69.0	66.0	D.
817	Aug. 23	11.00			Brenton's Reef Light-ship, E. $\frac{1}{4}$ S., 2 $\frac{1}{2}$ miles.....	10	do.....	72.0	68.0	63.0	D.
818	Aug. 23	11.20			Brenton's Reef Light-ship, E. $\frac{1}{4}$ S., 3 $\frac{1}{2}$ miles.....	9 $\frac{1}{2}$	do.....	72.0	68.0	65.0	D.
819	Aug. 23	1.00 p. m.			South end Hope Island, SE. by E., $\frac{1}{4}$ E., $\frac{1}{2}$ mile.....	6	Mud and broken shells.....	74.0	73.0	70.0	T.
820	Aug. 23	1.40			South end Hope Island, N. N.E., $\frac{1}{4}$ mile.....	5 $\frac{1}{2}$	do.....	76.0	73.0	70.0	T.
821	Aug. 23	2.15			South end Hope Island, N. by E., $\frac{1}{4}$ mile.....	5	do.....	78.0	72.0	70.0	T.
822	Aug. 23	3.60			South end Hope Island, N.E., $\frac{1}{8}$ mile.....	4 $\frac{1}{2}$	do.....	78.0	71.0	70.0	T.
823	Aug. 24	12.35			North of Block Island;.....	15 $\frac{1}{2}$	Sand.....	74.0	65.0	60.0	D.
824	Aug. 24	12.50			North Light of Block Island, SW. $\frac{1}{4}$ W., 1 mile.....	13	do.....	74.0	65.0	67.0	T.

			O. T.
825	Aug. 24	1.30	
826	Aug. 24	2.40	
827	Aug. 24	3.05	
828	Aug. 25	12.40	
829	Aug. 27	10.45 a. m.	
830	Aug. 27	11.15	
831	Aug. 27	12.30 p. m.	
832	Aug. 27	12.45	
833	Aug. 27	1.00	
834	Aug. 27	1.30	
835	Aug. 27	1.50	
836	Aug. 27	2.25	
837	Aug. 27	2.45	
838	Aug. 27	3.15	
839	Aug. 31	9.50 a. m.	
840	Aug. 31	10.05	
841	Aug. 31	10.45	
842	Aug. 31	11.00	
843	Aug. 31	12.00 m.	
844	Aug. 31	12.30 p. m.	
845	Aug. 31	1.00	
846	Aug. 31	1.35	
847	Aug. 31	2.15	
848	Aug. 31	3.00	
849	Sept. 1	9.20 a. m.	
850	Sept. 1	9.40	
851	Sept. 1	10.00	
852	Sept. 1	10.35	
853	Sept. 1	10.50	
854	Sept. 1	11.10	
855	Sept. 1	11.40	
856	Sept. 1	12.05 p. m.	
857	Sept. 1	12.35	
858	Sept. 1	1.05	
859	Sept. 3	11.20 a. m.	
860	Sept. 3	11.55	
861	Sept. 3	12.20 p. m.	
862	Sept. 3	12.55	
863	Sept. 3	1.40	
864	Sept. 3	3.00	
North Light of Block Island, W. SW. $\frac{1}{4}$ mile ...	13	...do	67.9 60.0
W. $\frac{1}{4}$ miles.			73.0
North Light of Block Island, W. NW. $\frac{1}{4}$ mile ...	22	...do	67.0 57.0
W. $\frac{1}{4}$ miles.			73.0
North Light of Block Island, W. NW. $\frac{1}{4}$ mile ...	20 $\frac{1}{2}$	...do	67.0 57.0
W. $\frac{1}{4}$ miles.			71.0
North Light of Block Island, SW. by W. E. NE. $\frac{1}{4}$ mile ...	15	...do	60.0 60.0
W. $\frac{1}{4}$ miles.			70.0
Mouth of Sakonnet River, R. I.: Cormorant Rock, N.W. by N. $\frac{1}{4}$ mile ...	9	Gravel and stones	63.0 66.0
West Island, Sc., by E. $\frac{1}{4}$ E. $\frac{1}{4}$ mile ...	10 $\frac{1}{2}$	Sand and gravel...	64.0 66.0
Sakonnet River, R. I.: North end of Gould Island, SW. $\frac{1}{4}$ W., 350 yards.	6	Dark, soft feld mud	68.0 71.0
North end of Gould Island, W., 150 yards.	9	do	70.0 71.0
South end of Gould Island, W., 100 yards.	6 $\frac{1}{2}$	do	70.0 71.0
McCurry's Point, W. SW. $\frac{1}{4}$ mile ...	11	do	63.0 73.0
McCurry's Point, N. $\frac{1}{4}$ E. $\frac{1}{4}$ miles ...	3 $\frac{1}{2}$	Soft mud and broken shells...	68.0 71.0
Black Point, W. $\frac{1}{4}$ N. $\frac{1}{4}$ mile ...	5	Sand	66.0 71.0
Black Point, W. $\frac{1}{2}$ W. $\frac{1}{4}$ mile ...	5	do	69.0 71.0
Wood's Castle, W. by N., 1 mile ...	5 $\frac{1}{2}$	do	66.0 70.0
Narragansett Bay: Dimpness, N.W. $\frac{1}{4}$ N., 300 yards ...	27 $\frac{1}{2}$	Gravel and sand	67.0 67.0
Dimpness, N. by W. $\frac{1}{4}$ W., 100 yards ...	20 $\frac{1}{2}$	do	67.0 67.0
Goat Island Light, N.E. by E. $\frac{1}{4}$ E., $\frac{1}{4}$ mile.	21	Mud, sand, large stones ...	68.0 67.0
Goat Island Light, N.E. by E. $\frac{1}{4}$ E., $\frac{1}{4}$ mile.	8	Sand	69.0 67.0
Goat Island Light, E. NE. $\frac{1}{4}$ E., $\frac{1}{4}$ mile ...	14 $\frac{1}{2}$	do	69.0 69.0
North end Dyer's Island, N.E. $\frac{1}{4}$ E., $\frac{1}{4}$ mile ...	11 $\frac{1}{2}$	do	70.0 69.0
North end Dyer's Island, SE. $\frac{1}{4}$ E., $\frac{1}{4}$ mile ...	14 $\frac{1}{2}$	Gravel	70.0 69.0
Prudence Light, N. $\frac{1}{4}$ W. $\frac{1}{4}$ mile ...	14 $\frac{1}{2}$	Sandy mud and broken shells	70.0 68.0
Prudence Light, N. by E. $\frac{1}{4}$ E., $\frac{1}{4}$ miles ...	12 $\frac{1}{2}$	Mud	70.0 68.0
Half-Way Rock, N. $\frac{1}{4}$ W., 1 mile ...	15 $\frac{1}{2}$	Mud	69.0 68.0
Bishop's Rocks, E. $\frac{1}{4}$ miles ...	14 $\frac{1}{2}$	Sand, gravel, stones ...	67.0 67.0
Fort Dumpling, E. $\frac{1}{4}$ E. $\frac{1}{4}$ miles ...	14 $\frac{1}{2}$	Sand and shells ...	67.0 67.0
Beaver Tail Light, S. SW. $\frac{1}{4}$ W., $\frac{1}{4}$ miles ...	12 $\frac{1}{2}$	Sand and gravel ...	66.0 67.0
Beaver Tail Light, S. SW. $\frac{1}{4}$ W., $\frac{1}{4}$ miles ...	4 $\frac{1}{2}$	Sand	66.0 67.0
Beaver Tail Light, SW. $\frac{1}{4}$ miles ...	6	Sand	68.0 67.0
Beaver Tail Light, SW. $\frac{1}{4}$ miles ...	3 $\frac{1}{2}$	Sand	69.0 67.0
Beaver Tail Light, SW. $\frac{1}{4}$ miles ...	11	Sand, gravel, shells ...	69.0 68.0
Beaver Tail Light, W. SW. $\frac{1}{4}$ W., $\frac{1}{4}$ miles ...	14	Course sand, broken shells ...	69.0 63.0
Vineyard Sound: Cuttyhunk Light, N. $\frac{1}{4}$ W. $\frac{1}{4}$ miles ...	17 $\frac{1}{2}$	Sand and mud ...	68.0 66.0
Cuttyhunk Light, N. $\frac{1}{4}$ W. $\frac{1}{4}$ miles ...	17 $\frac{1}{2}$	...do	66.0 64.0
Cuttyhunk Light, N. $\frac{1}{4}$ W. $\frac{1}{4}$ miles ...	17	Sand	69.0 66.0
Cuttyhunk Light, N. $\frac{1}{4}$ W. $\frac{1}{4}$ miles ...	17	do	67.0 65.0
Cuttyhunk Light, N. $\frac{1}{4}$ W. $\frac{1}{4}$ miles ...	18	Sand and mud ...	68.0 66.0
Gay Head Light, S.S.W. $\frac{1}{4}$ W., $\frac{1}{4}$ miles ...	13	Sand and broken shells ...	70.0 67.0

Dredging stations of the steamer Fish Hawk for 1850, 1881, and 1882—Continued.

Date.	Hour.	Latitude N.	Longitude W.	Locality.	Drift.		Nature of bottom.	Temperature. Air. Surf. Bot.- tom.	Apparatus used.
					Bottom	Depth fathoms			
1880.	5.40 a.m.	40° 05'	"	Atlantic Ocean: Off Martha's Vineyard.	E.N.E., $\frac{3}{4}$ N.E., $\frac{1}{4}$ S.E., $\frac{1}{4}$ E.S.E., $\frac{1}{4}$	65	Compact fine sand and mud.	71.0	T.
865 Sept. 4	6.30	40° 05'	18	70° 22' 18"	do	65	Fine sand and mud.	73.0	T.
866 Sept. 4	7.04	40° 05'	42	70° 22' 06"	do	64	Compact hard sand and broken shells.	73.0	R.D.
868 Sept. 4	8.23	40° 01'	42	70° 22' 30"	do	162	Fine sand and black specks.	75.0	T.
869 Sept. 4	9.27	40° 02'	18	70° 22' 58"	do	192	Fine sand.	80.0	T.
870 Sept. 4	10.59	40° 02'	36	70° 22' 58"	do	155	Mud and fine sand.	80.0	T.
871 Sept. 4	11.40	40° 02'	54	70° 23' 40"	do	115	Mud and fine sand.	84.0	T.
872 Sept. 4	12.45 p.m.	40° 05'	39	70° 23' 52"	do	86	Sand, gravel, shells, and sponge.	81.0	T.
873 Sept. 13	5.36 a.m.	40° 02'	00	70° 57'	do	100	Soft sticky mud.	68.0	T.
874 Sept. 13	6.26	40° 00'	00	70° 57' 00"	do	85	do	70.0	T.
875 Sept. 13	7.51	39° 57'	00	70° 57' 30"	do	126	do	70.0	T.
876 Sept. 13	8.45	39° 57'	00	70° 56' 00"	do	120	do	70.0	T.
877 Sept. 13	9.40	39° 57'	00	70° 54' 18"	do	126	do	71.0	T.
878 Sept. 13	11.00	39° 55'	00	70° 54' 15"	do	126	do	71.0	T.
879 Sept. 13	1.20 p.m.	39° 49'	30	70° 54' 00"	do	142	Mud and blue mud.	72.0	T.
880 Sept. 13	3.12	39° 48'	30	70° 54' 00"	do	225	Mud.	73.0	T.
881 Sept. 13	5.00	39° 46'	30	70° 54' 00"	do	225	do	74.0	T.
882 Sept. 17	10.56 a.m.	.....	.....	Halfway Rock, N. N.E., $\frac{2}{3}$ miles	SW., $\frac{1}{4}$ mile	124	Mud.	68.0	T.
883 Sept. 17	11.35	.....	.....	Halfway Rock, N.E. by N., $\frac{1}{4}$ miles	SW., $\frac{1}{4}$ mile	13	do	70.0	T.
884 Sept. 17	12.10 p.m.	.....	.....	Hop Island, N.E., $\frac{1}{2}$ E., 200 yards	SW., $\frac{1}{4}$ mile	5	do	72.0	T.
885 Sept. 17	3.15	.....	.....	Gould Island, N. by E., $\frac{1}{2}$ E., $\frac{1}{2}$ mile	S., $\frac{1}{4}$ mile	16	Mud and shells	73.0	O.T.
886 Sept. 21	12.49	.....	.....	Off Block Island:	.....	16	do	71.0	O.T.
887 Sept. 21	1.30	.....	.....	South Light of Block Island, N. $\frac{1}{4}$ E., $\frac{1}{4}$ miles.	Shells and coarse gravel	19	do	67.0	D.
888 Sept. 21	2.00	.....	.....	South Light of Block Island, N. $\frac{1}{4}$ W., $\frac{1}{4}$ miles.	.....	19	do	67.0	D.
889 Sept. 21	3.50	.....	.....	South Light of Block Island, W. $\frac{1}{4}$ S., $\frac{1}{4}$ miles.	Hard sand and rocks	11	do	68.0	D.
890 Sept. 21	4.15	.....	.....	South Light of Block Island, W. $\frac{1}{4}$ S., $\frac{1}{4}$ miles.	do	11	do	68.0	D.
891 Oct. 2	6.00 a.m.	39° 46'	00	71° 10' 00"	do	19	do	68.0	T.
892 Oct. 2	8.46	39° 46'	00	71° 05' 00"	do	11	do	64.0	T.
893 Oct. 2	11.23	39° 52'	30	70° 58' 00"	do	480	Soft, brown mud.	69.0	T.
894 Oct. 2	1.10 p.m.	39° 53'	00	70° 58' 30"	do	487	Soft, brown mud and small stone.	64.0	T.
						372	do	63.0	T.
						365	do	63.0	T.

Dredging stations of the steamer *Fish Hawk* for 1880, 1881, and 1882—Continued.

Serial number	Date.	Hour.	Latitude N.	Longitude W.	Locality.	Drift.	Bottom depth fathoms	Nature of bottom.	Temperatures.		
									Air	Surf	Bottom ton.
944	Aug. 9	8.27 a.m.	° 40' 00"	° 71' 14' 30"	Atlantic Ocean: Off Martha's Vineyard	N.W. by N., $\frac{1}{4}$ miles,	128	Mud, sand, and shells	78.0	70.0	51.0
945	Aug. 9	12.05 p.m.	39' 58' 00"	71' 13' 00"	do	N.W. by N., 2 miles,	207	Green mud and sand	75.0	71.0	44.0
946	Aug. 9	2.00	39' 55' 30"	71' 14' 00"	do	N.W. by W., $\frac{1}{4}$ miles,	247	do	75.5	71.0	47.0
947	Aug. 9	4.00	39' 53' 30"	71' 13' 30"	Buzzard's Bay:	W.N.W., 3 miles,	319	Sand and mud	75.0	70.0	44.0
948	Aug. 13	5.20	.....	.....	Penikese Island east, 2 miles	W.S.W., 1 mile	7	Black mud and shells	76.6	67.0	66.0
949	Aug. 23	4.20 a.m.	40' 03' 00"	70' 31' 00"	Atlantic Ocean: Off Martha's Vineyard	N.N.W., 2 miles	100	Yellow mud	68.0	66.0	52.0
950	Aug. 23	5.50	40' 07' 00"	70' 32' 00"	do	N.W. by N., $\frac{1}{2}$ miles	71	Sand, shells, and mud	69.0	65.0	52.0
951	Aug. 23	0.40	39' 57' 00"	70' 31' 30"	do	N.E. by N., $\frac{1}{2}$ miles	225	Mud	78.0	67.5	41.0
952	Aug. 23	11.18	39' 55' 00"	70' 28' 00"	do	N.E. by N., $\frac{1}{4}$ miles	396	Yellow mud and sand	82.0	68.0	40.0
953	Aug. 23	2.30 p.m.	39' 52' 30"	70' 17' 30"	do	N.N.W., $\frac{1}{2}$ miles	724	Mud	77.0	68.0	39.5
954	Aug. 23	4.50	39' 53' 00"	70' 18' 30"	do	N.N.W., 2 miles	651	Sand and mud	74.5	68.0	39.5
955	Aug. 26	10.50 a.m.	.....	.....	Buzzard's Bay:	W. by S., $\frac{1}{4}$ miles	7	Sand	69.0	67.5	68.0
956	Aug. 26	11.26	.....	.....	Nye's Neck, S. S.E. $\frac{1}{2}$ E., $\frac{1}{4}$ mile	W. by S., $\frac{1}{4}$ mile	54	do	71.0	69.0	68.0
957	Aug. 26	11.45	.....	.....	Nye's Neck, S. S.E. $\frac{1}{2}$ E., $\frac{1}{4}$ mile	W. $\frac{3}{4}$ N., $\frac{1}{4}$ mile	6	Sand and stones	73.0	69.5	68.0
958	Aug. 26	12.30 p.m.	.....	.....	Nye's Neck, S. $\frac{1}{2}$ E., $\frac{1}{4}$ mile	W. $\frac{3}{4}$ N., $\frac{1}{4}$ mile	5	Sand, stones, shells	75.0	70.0	68.0
959	Aug. 26	12.40	.....	.....	Nye's Neck, S. $\frac{1}{2}$ E., $\frac{1}{4}$ mile	W. $\frac{3}{4}$ N., $\frac{1}{4}$ mile	5	do	72.0	69.0	68.0
960	Aug. 26	1.10	.....	.....	Nye's Neck, S. $\frac{1}{2}$ E., $\frac{1}{4}$ mile	W. $\frac{3}{4}$ N., $\frac{1}{4}$ mile	4 $\frac{1}{2}$	do	72.5	69.5	68.0
961	Aug. 26	1.52	.....	.....	Nye's Neck, N.E. $\frac{1}{2}$ E., $\frac{1}{4}$ miles	W. by S., $\frac{1}{2}$ mile	8	Black mud	71.5	69.0	68.0
962	Aug. 26	3.10	.....	.....	Wopecket Island, N.E. $\frac{1}{2}$ E., $\frac{1}{4}$ miles	W. N.W., $\frac{1}{2}$ mile	8	Black mud, sand	71.0	68.0	66.0
963	Aug. 26	3.40	.....	.....	Wopecket Island, S.E. $\frac{1}{2}$ S., $\frac{1}{4}$ mile	W. S.W., $\frac{1}{2}$ mile	8 $\frac{1}{2}$	Brown mud	70.0	68.0	66.0
964	Aug. 30	7.50 a.m.	.....	.....	Off Chatham, Cape Cod (Cape Cod Ledge):	S.S.E., $\frac{1}{2}$ mile	10	Sand, gravel	65.0	61.0	55.0
965	Aug. 30	8.15	.....	.....	Chatham Lights, N.W. $\frac{1}{2}$ W., 5 miles	SE. by E., $\frac{1}{2}$ mile	15	do	65.0	61.0	53.0
966	Aug. 30	8.40	.....	.....	Chatham Lights, N.W. by W., 6 miles	SE., $\frac{1}{2}$ mile	16	Sand, small stones	65.0	61.0	52.0
967	Aug. 30	8.50	.....	.....	Chatham Lights, N.W. by W., $\frac{1}{2}$ W., 6 miles	SE., $\frac{1}{2}$ mile	16	Sand, gravel	66.0	61.0	52.0
968	Aug. 30	9.00	.....	.....	Chatham Lights, N.W. by W., $\frac{1}{2}$ W., $\frac{1}{4}$ mile	N.W. by W., $\frac{1}{2}$ mile	18	Gravel	66.0	61.5	50.5
969	Aug. 30	9.10	.....	.....	Chatham Lights, N.W. by W., $\frac{1}{2}$ W., $\frac{1}{4}$ mile	SE., $\frac{1}{2}$ mile	18	Sand, pebbles	66.0	61.5	51.0
970	Aug. 30	9.43	.....	.....	Chatham Lights, N.W. $\frac{1}{2}$ W., 6 miles	SE., $\frac{1}{2}$ mile	13	do	67.0	61.0	54.0
971	Aug. 30	10.05	.....	.....	Chatham Lights, W. $\frac{1}{2}$ N., $\frac{1}{4}$ miles	S.S.E., $\frac{1}{2}$ mile	11	Sand, gravel, pebbles	67.0	61.5	54.0

Dredging stations of the steamer Fish Hawk for 1850, 1851, and 1852—Continued.

Serial number per date	Date	Hour.	Latitude N.	Longitude W.	Locality.	Drift.	Nature of bottom.		Temperatures.		
							ft. below bottom	ft. depth bottom	Air.	Surf.	Bat- tom.
1037	1851 Sept. 15	8.00 a.m.	39° 58'	70° 06'	Off Gay Head, Martha's Vineyard; Gay Head Light, NE. $\frac{1}{4}$ N., 4 miles Atlantic Ocean;	.....	16	Sand.....	67.0	67.0	47.0
1038	Sept. 21	6.55	39° 58'	70° 06'	Off Martha's Vineyard	N. by E., 1 mile.	146	Sand and shells.....	66.5	67.0	50.0
1039	Sept. 21	9.35	39° 59'	70° 05'	..... do	N. by E., 2 miles	120	do	64.0	68.0	66.0
1040	Sept. 21	10.43	40° 00'	70° 05'	..... do	N. by E., 2 miles	93	do	63.5	65.0	63.0
1041	Sept. 22	12.35 p.m.	.....	.....	Vineyard Sound, Mass.; West Chop Light, E. $\frac{1}{4}$ N., $\frac{1}{2}$ miles.....	W. SW., $\frac{3}{4}$ mile.....	9	Sand and gravel.....	63.5	65.0	63.0
1042	Sept. 22	1.17	.....	.....	West Chop Light, E. $\frac{1}{4}$ N., $\frac{1}{2}$ miles.....	W. by N., $\frac{1}{2}$ mile.....	6	do	63.5	65.0	63.0
1043	Oct. 10	7.17 a.m.	38° 39'	73° 11'	Atlantic Ocean; Off the Capes of Delaware	NW. by N., $\frac{1}{4}$ miles.....	130	Sand.....	63.5	65.5	49.0
1044	Oct. 10	8.15	38° 37'	73° 12'	..... do	W. NW., $\frac{1}{2}$ mile.....	224	Gray mud	65.0	66.0	42.5
1045	Oct. 10	9.32	38° 35'	73° 13'	..... do	W. $\frac{3}{4}$ N., $\frac{1}{2}$ mile.....	312	do	66.0	60.0	40.0
1046	Oct. 10	11.14	38° 33'	73° 18'	..... do	W. NW., $\frac{3}{4}$ mile.....	104	Sand	66.0	63.0	51.0
1047	Oct. 10	12.15 p.m.	38° 31'	73° 21'	..... do	NW., $\frac{1}{2}$ miles.....	156	do	69.0	66.0	49.0
1048	Oct. 10	1.55	38° 29'	73° 21'	..... do	N. $\frac{1}{2}$ miles.....	435	Mud.....	71.0	66.0	40.0
1049	Oct. 10	3.39	38° 28'	73° 22'	..... do	N. NW., 2 miles.....	435	do	68.0	65.0	40.0
1050	1852 Feb. 27	2.00 p.m.	.....	.....	Chesapeake Bay;	.....	31	Mud, shells, gravel	50.0	41.0	40.0
1051	Feb. 27	2.15	.....	.....	Point No Point, N. NE., $\frac{1}{4}$ miles.....	.....	2	Mud, grass	50.0	41.0	40.0
1052	Feb. 27	3.30	.....	.....	Point No Point, N. by E., 1 mile.....	.....	13	do	50.0	41.0	40.0
1053	Feb. 27	4.45	.....	.....	Point No Point, N. NE., $\frac{1}{2}$ mile.....	.....	13	Mud, shells, oysters	50.0	41.0	40.0
1054	Feb. 27	2.50	.....	.....	Point No Point, N. by E., $\frac{1}{4}$ miles.....	.....	13	do	50.0	41.0	40.0
1055	Feb. 28	10.40 a.m.	.....	.....	Point No Point, N. by E., $\frac{1}{4}$ miles.....	.....	13	Mud, shells, oysters	50.0	41.0	40.0
1056	Feb. 28	10.55	.....	.....	Patuxent River, Maryland;	.....	6	Brown mud, shells	46.0	40.0	.....
1057	Feb. 28	12.00 m.	.....	.....	Drum Point, N.E., $\frac{1}{2}$ mile.....	.....	6	do	46.0	40.0	R.D.
1058	Feb. 28	12.10 p.m.	.....	.....	Chesapeake Bay;	.....	6	Brown mud	49.0	40.0	40.0
1059	Feb. 28	12.30	.....	.....	South end Barren Island, SE. by E. $\frac{1}{4}$ E., 2 miles.....	W. NW., $\frac{1}{2}$ mile.....	17-20	Brown mud	49.0	40.0	40.0
1060	Feb. 28	4.40	.....	.....	South end Barren Island, SE. $\frac{1}{4}$ E., 2 miles.....	W. NW., $\frac{3}{4}$ mile.....	22-25	do	49.0	40.0	40.0
1061	Mar. 2	11.20 a.m.	.....	.....	Smith's Point, S.S.W., 2 miles.....	SE. by S., $\frac{3}{4}$ mile.....	7	Brown mud, shells	46.0	41.0	40.5
1062	Mar. 2	11.40	.....	.....	Smith's Point Light, S. by W., $\frac{1}{2}$ miles.....	S., $\frac{1}{2}$ mile.....	11-16	do	43.0	41.5	41.5
1063	Mar. 2	1.35 p.m.	.....	.....	Smith's Point Light, S.W. $\frac{1}{4}$ S., $\frac{1}{4}$ miles.....	S. by W., 1 mile.....	16-19	do	48.0	41.5	41.5
1064	Mar. 2	2.17	.....	.....	South point Tangier Island, N. by E., $\frac{3}{4}$ $\frac{1}{4}$ miles.....	N.E. by E., $\frac{1}{2}$ mile.....	19	do	50.0	44.0	42.0
					South point Tangier Island, N.N.W., 1 mile.....	N.E. by E., $\frac{1}{2}$ mile.....	20-21	do	50.0	42.0	R.D.

1065	Mar. 6	9.00 a.m.	Cherrystone Light, E. by S., 3 miles	25-32	Sand.....	56.0	45.0	46.5	T.	
1066	Mar. 6	9.20	Cherrystone Light, S.E. by E., 3 miles	12-25	do.....	56.0	45.0	45.0	T.	
1067	Mar. 6	9.40	Cherrystone Light, S.E. by W., 3 miles	12-20	do.....	56.0	45.0	47.0	T.	
1068	Mar. 11	9.50 a.m.	Thomas Point Light, W. SW. $\frac{1}{4}$ W., 2 miles	14-9	Black mud	49.0	42.0	41.0	T.	
1069	Mar. 11	10.20	Thomas Point Light, S.W. by W., $\frac{3}{4}$ W., 2 miles	18	do.....	51.0	42.0	40.0	T.	
1070	Mar. 11	10.45	Thomas Point Light, W. by S., 2 miles	15-10	do.....	45.0	42.0	42.0	T.	
1071	Mar. 11	11.22	Thomas Point Light, W.N.W., $\frac{1}{2}$ W., $\frac{2}{3}$ miles	14-13	do.....	49.0	42.0	40.0	T.	
1072	Mar. 11	12.00 m.	Thomas Point Light, N.W., 21 miles	16	do.....	50.0	42.0	42.0	R.D.	
1073	Mar. 11	12.25 p.m.	Thomas Point Light, N.W. by N., $\frac{1}{2}$ miles	13	Black mud, shells.....	50.0	42.0	42.0	R.D.	
1074	Mar. 11	1.10	Thomas Point Light, N. by W., $\frac{1}{2}$ W., 4 $\frac{1}{2}$ miles	18-11	Black mud	51.0	43.0	41.0	T.	
1075	Mar. 13	9.45 a.m.	Sandy Point Light, N. by W., $\frac{1}{2}$ W., 3 $\frac{1}{2}$ miles	14-11	Mud	45.0	43.0	40.0	T.	
1076	Mar. 13	10.15	Sandy Point Light, N. by W., $\frac{1}{2}$ W., 3 $\frac{1}{2}$ miles	15	do.....	45.0	43.0	40.0	T.	
1077	Mar. 13	10.55	Sandy Point Light, N.W. $\frac{1}{2}$ W., $\frac{2}{3}$ miles	11-12	do.....	49.0	43.0	40.0	T.	
Off Cape Cod:										
1078	Aug. 2	7.30 a.m.	Nauset Lights, N.W. $\frac{1}{2}$ N., 10 miles	55	Green mud, fine sand	72.0	63.0	37.0	T.	
1079	Aug. 2	8.40	Nauset Lights, N.W. by W., $\frac{1}{2}$ W., 8 $\frac{1}{2}$ miles	61 $\frac{1}{2}$	Fine sand	69.0	63.5	37.0	T.	
1080	Aug. 2	9.40	Nauset Lights, N.W. by W., $\frac{1}{2}$ W., 8 $\frac{1}{2}$ miles	55	do.....	69.0	61.5	37.0	T.	
1081	Aug. 2	10.50	Nauset Lights, N.W. by S., $\frac{1}{3}$ miles	33 $\frac{1}{2}$	Coarse gravel and pebbles	69.0	59.0	39.0	T.	
1082	Aug. 2	11.45	Cape Cod Light, N.W. $\frac{1}{2}$ N., 11 $\frac{1}{2}$ miles	28	Coarse gravel	70.0	59.0	40.0	T.	
1083	Aug. 2	12.45 p.m.	Cape Cod Light, N.W. $\frac{1}{2}$ N., 15 miles	82 $\frac{1}{2}$	W.S.W., $\frac{1}{2}$ mile	77.0	64.0	38.0	T.	
1084	Aug. 2	2.20	Cape Cod Light, W.N.W., $\frac{1}{2}$ W., 8 miles	37 $\frac{1}{2}$	Coarse sand	78.0	62.5	38.0	T.	
1085	Aug. 3	6.15 a.m.	Race Point Light, S. $\frac{3}{4}$ W., 12 miles	24 $\frac{1}{2}$	Fine sand, green mud	67.0	64.0	39.0	T.	
1086	Aug. 3	7.00	Race Point Light, S. $\frac{3}{4}$ W., 20 $\frac{1}{2}$ miles	34	do.....	74.0	64.0	39.5	T.	
1087	Aug. 3	8.30	Cape Cod Light, S.S.W., 7 miles	44	Gray sand	74.0	62.5	39.0	T.	
1088	Aug. 3	9.50	Cape Cod Light, S.W. $\frac{1}{2}$ W., 9 $\frac{1}{2}$ miles	90	Coarse sand	82.5	62.0	38.0	T.	
1089	Aug. 3	11.10	Cape Cod Light, S.W. $\frac{1}{2}$ W., 14 miles	110	Gray mud	78.0	63.0	38.5	T.	
1090	Aug. 3	11.50	Cape Cod Light, S.W. $\frac{1}{2}$ W., 13 $\frac{1}{2}$ miles	110	do.....	81.5	62.0	38.5	T.	
1091	Aug. 11	5.30 a.m.	Off Marthas Vineyard.	N.W. by W., $\frac{1}{2}$ mile.	65	Gray sand, broken shells	77.0	75.0	46.0	T.
1092	Aug. 11	6.54	do.....	N.N.W., $\frac{3}{4}$ mile	202	Gray sand	79.0	75.0	41.0	T.
1093	Aug. 11	8.35	do.....	N.N.W., 1 mile	349	Blue mud, sand	82.0	75.0	40.0	T.
1094	Aug. 11	10.10	do.....	N.W. by N., 1 mile	301	Blue mud	84.0	76.0	40.0	T.
1095	Aug. 11	11.55	do.....	N.N.W. $\frac{1}{2}$ mile	321	Soft green mud	82.0	76.0	40.0	T.
1096	Aug. 11	1.39 p.m.	do.....	N.W. $\frac{1}{2}$ N. $\frac{1}{2}$ mile	317	do.....	78.0	75.5	40.0	T.
1097	Aug. 11	3.10	do.....	N. by E., $\frac{1}{2}$ mile	158	Fine sand	76.0	75.5	45.0	T.
1098	Aug. 11	4.35	do.....	N. by E., $\frac{1}{2}$ mile	156	do.....	78.0	75.0	43.5	T.
1099	Aug. 18	11.06 a.m.	Vineyard Sound;	NE. by N. $\frac{1}{2}$ mile	6	Sand, gravel	76.0	72.0	71.5	T.
1100	Aug. 18	11.47	Notska Point Light, W.S.W., $\frac{1}{2}$ W., 1 $\frac{1}{2}$ miles	4 $\frac{1}{2}$	Sand, gravel, shells	77.0	72.0	71.5	T.	

Dredging stations of the steamer *Fish Hawk* for 1880, 1881, and 1882—Continued.

Date.	Hour.	Latitude N.	Longitude W.	Locality.	Drift.	Depth fms.	Nature of bottom.			Temperatures.		
							Air.	Surf.	Bottom.	Air.	Surf.	Bottom.
1882.												
1101 Aug. 18	12.15 p.m.	° / "	° / "	Vineyard Sound:								
1102 Aug. 18	1.10			Nobska Point Light, W. by S. $\frac{1}{2}$ miles.	5	Sand, gravel, shells.....	78.0	72.0	71.0	T.		
1103 Aug. 18	1.42			East Chop Light, NW. $\frac{2}{3}$ miles.	5	Coarse sand.....	73.0	70.0	69.0	T.		
1104 Aug. 18	2.12			East Chop Light, NW. $\frac{2}{3}$ miles.	5	do.....	70.0	70.0	69.0	T.		
1105 Aug. 18	3.00			East Chop Light, W.N.W. $\frac{2}{3}$ miles.	8 $\frac{1}{2}$	Shells.....	79.0	70.0	69.0	T.		
1106 Aug. 18	3.35			Cape Poge Light, S. by W., 4 miles.....	10	Coarse sand.....	80.0	72.0	71.0	T.		
1107 Aug. 22	6.00 a.m.	40 02	70 35	Cape Poge Light, S. by W. $\frac{1}{2}$ miles.	5	Sand, shells.....	80.0	72.5	72.0	T.		
1108 Aug. 22	6.55	40 02	70 37	Off Martha's Vineyard.....	116	Gray mud.....	69.5	71.0	48.0	T.		
1109 Aug. 22	7.55	40 03	70 38	do.....	101	Gray mud, fine sand.....	69.5	71.0	48.0	T.		
1110 Aug. 22	9.16	40 02	70 35	do.....	89	Gray sand.....	70.5	71.0	49.0	T.		
1111 Aug. 22	10.45	40 01	70 35	do.....	100	Green mud, fine sand.....	75.0	72.0	47.0	T.		
1112 Aug. 22	12.43 p.m.	39 56	70 35	do.....	124	Fine sand.....	76.0	72.0	47.0	T.		
1113 Aug. 22	1.45	39 57	70 37	do.....	245	Green mud, sand.....	72.0	72.0	43.0	T.		
1114 Aug. 22	2.40	39 58	70 38	do.....	192	Green mud.....	75.0	72.0	43.0	T.		
1115 Aug. 22	3.28	39 59	70 41	do.....	171	do.....	74.0	72.0	43.0	R.D.		
1116 Aug. 22	4.29	39 59	70 44	do.....	146	Green mud, sand.....	75.0	72.5	45.0	R.D.		
1117 Aug. 22	5.30	40 02	70 45	do.....	146	do.....	75.0	72.0	46.0	T.		
1118 Aug. 22	6.20	40 03	70 45	do.....	89	Fine sand.....	78.0	72.0	48.0	T.		
1119 Aug. 22	6.32 a.m.	62.08	68.45	do.....	70	do.....	74.0	72.0	49.0	T.		
1120 Aug. 26	7.41	40 05	68.48	do.....	97	Sand, broken shells.....	68.0	63.0	48.0	T.		
1121 Aug. 26	9.05	40 04	68.49	do.....	194	Fine sand, stones.....	69.0	63.0	43.5	T.		
1122 Aug. 26	10.28	40 02	68.50	do.....	146	do.....	65.0	63.0	41.5	T.		
1123 Aug. 26	12.00 m.	39 59	68.54	do.....	351	do.....	70.0	67.0	40.5	T.		
1124 Aug. 26	4.01 p.m.	40 01	68.54	do.....	787	Fine sand, green mud, lime-stone nodules.....	70.0	69.0	39.0	T.		
1125 Aug. 26	5.45	40 03	68.56	do.....	640	Fine sand, green mud, lime-stone nodules.....	65.0	63.0	39.0	T.		
1126 Aug. 28	1.46 p.m.			Vineyard Sound, Menemsha Bight:	291	Sand, mud.....	65.0	64.0	40.0	T.		
1127 Aug. 28	2.30			Gay Head Light-house, W.S.W. $\frac{2}{3}$ miles.	14	Sand, black mud.....	72.0	66.0	63.5	T.		
1128 Aug. 28	3.10			Gay Head Light-house, W. $\frac{2}{3}$ miles.	10	Gray sand, mud.....	66.0	66.0	64.0	T.		
1129 Sept. 2	2.00			North of Noman's Land:	9	do.....	69.0	66.0	63.0	D.		
1130 Sept. 2	2.13			Fishing Village, S. $\frac{1}{2}$ mile.	4	Sand, stones.....	72.0	65.0	62.0	D.		
1131 Sept. 2	2.29			Fishing Village, S. $\frac{1}{2}$ mile.	4	do.....	72.0	65.0	62.0	D.		
				Fishing Village, SE. by E. $\frac{1}{2}$ mile.	4	do.....	72.0	65.0	63.0	D.		

1132	Sept. 2	2.45	Fishing Village, SE. by E., $\frac{1}{4}$ mile.....	N.N.E., $\frac{1}{4}$ mile.....	4	... do	72.0	65.0	62.0
1133	Sept. 2	3.10	Fishing Village, SE., $\frac{1}{4}$ mile.....	E. by S., $\frac{1}{4}$ mile..	4	... do	72.0	65.0	62.0
1134	Sept. 6	1.26 p.m.	Vineyard Sound, Menemsha Bright,	NE. by S., $\frac{1}{4}$ mile..	9 $\frac{1}{2}$	Sand, mud	76.0	66.0	64.0
1135	Sept. 6	2.20	Gay Head Light, W.S.W. $\frac{3}{4}$ miles..	N.W. by N., $\frac{1}{4}$ mile	7 $\frac{1}{2}$	do	71.0	66.0	64.0
1136	Sept. 6	3.50	Gay Head Light, W. $\frac{3}{4}$ S. W.S.W. $\frac{3}{4}$ W., 3 miles..	NE., $\frac{1}{4}$ mile ..	10	Mud	70.0	66.0	63.0
1137	Sept. 8	6.00 a.m.	Off Martha's Vineyard	NE., $\frac{1}{4}$ mile ..	173	Fine sand, pebbles	68.0	70.0	46.0
1138	Sept. 8	7.24	do	N.N.W., $\frac{1}{4}$ mile ..	168	do	72.0	71.0	46.0
1139	Sept. 8	8.48	do	N.W., 1 mile ..	291	do	74.0	72.0	44.0
			N.W. by W., $1\frac{1}{2}$ miles,	N., 1 mile.	374	Fine sand, soft mud, pebbles	78.0	73.0	40.0
			W. by N., $\frac{1}{2}$ N., 1 mile.	Sand and mud	389	Sand and mud	80.0	74.0	40.0
1140	Sept. 8	10.35	39 34	71 56	do	do	do	do	T.
1141	Sept. 8	12.27 p.m.	39 32	71 57	do	do	do	do	T.
1142	Sept. 8	1.52	39 32	72 00	do	do	do	do	T.
1143	Sept. 8	3.36	39 29	72 01	do	do	do	do	C.T.
1144	Sept. 8	6.00	39 31	72 06	do	do	do	do	C.T.
1145*	Sept. 21	40 03	70 28	70 28	do	do	do	do	C.T.
1146	Sept. 21	40 02	70 41	70 41	do	do	do	do	C.T.
1147	Sept. 22	40 01	71 02	71 02	do	do	do	do	C.T.
1148	Sept. 23	39 54	71 22	71 22	do	do	do	do	C.T.
1149	Sept. 23	39 50	71 25	71 25	do	do	do	do	C.T.
1150	Oct. 4	6.35 a.m.	39 58	70 37	do	do	do	do	C.T.
1151	Oct. 4	7.45	39 58	70 37	do	do	do	do	C.T.
1152	Oct. 4	8.42	39 53	70 35	do	do	do	do	C.T.
1153	Oct. 4	10.45	39 54	70 37	do	do	do	do	C.T.
1154	Oct. 4	12.10 p.m.	39 55	70 39	do	do	do	do	C.T.
1155	Oct. 4	4.06	39 52	70 30	do	do	do	do	C.T.

* Nos. 1145-1149 indicate the stations of the fishing schooner *Josie Reeves*, using cod trawl-lines.

SCARCITY OF BLACKFISH—MORTALITY OF CODFISH.**By CHAS. C. LESLIE.**

[From letter to G. Brown Goode.]

For the past four or five years we have noticed the scarcity of blackfish in the summer, and especially this summer. The smacks here have not made their expenses for the past two months. I have just seen Capt. S. M. Corker, one of our expert blackfish fishermen, who has been in the business for thirty years. He tells me that he has never seen them so scarce as they are at present, and that in former years the fishermen were accustomed to catch enough to pay expenses during the summer. Captain Corker also tells me that about June 1 a vessel came into this port, and, according to the statement of her captain, she sailed through acres of codfish, floating belly up, between Hatteras and Cape Henry. The fish were not dead, but very weak.

CHARLESTON, S. C., *June 29, 1882.***SHAD FISHING ON THE SAINT JOHN'S RIVER.****By JOHN H. OSBORN.**

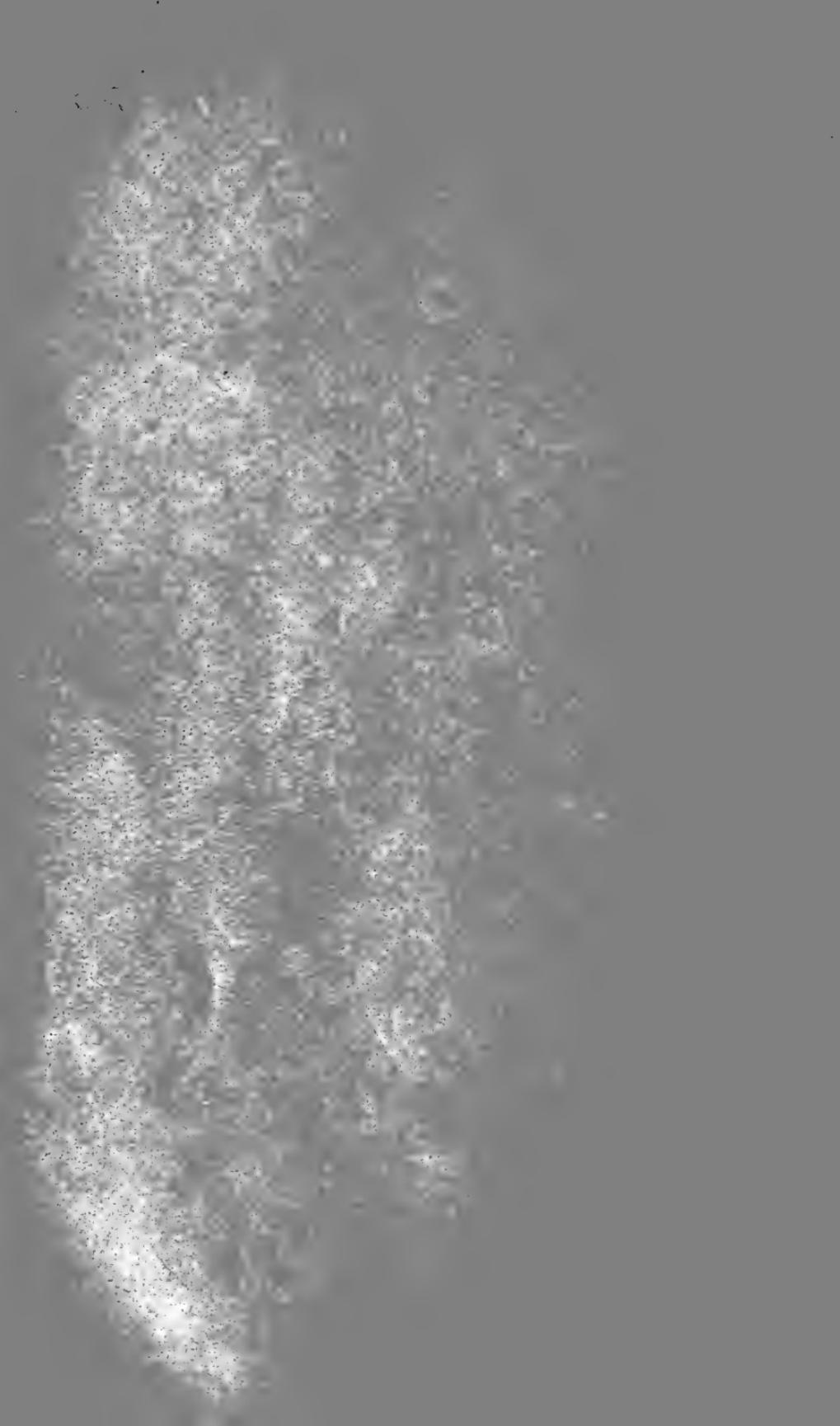
[From a letter to Prof. S. F. Baird.]

The past winter was very poor; the river was quite low and everything favorable for a good run of shad. I fished from January 12 until February 25. This is my sixth and last winter on the Saint John's. Our average catch nightly was 13 during January; during February it was 20. We had a good many northeast winds and many very cold nights, both of which stopped shad from running.

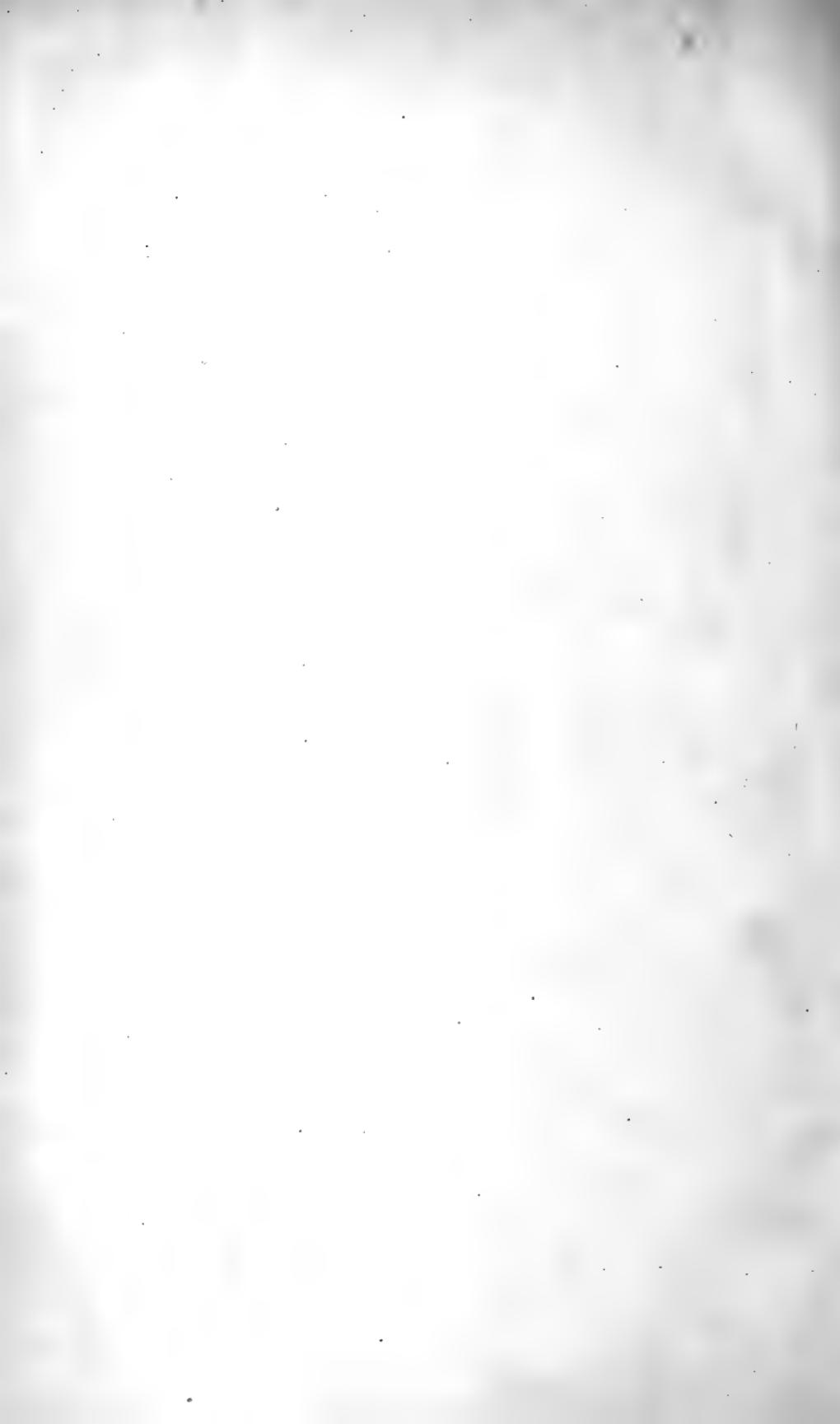
Several fishermen on the lower river have quit the business. Messrs. Melton & Tote, the largest fishery near Jacksonville, running 30 nets, did not pay expenses. Shad sold in Palatka and Jacksonville for 50 cents apiece. We sold a 1 we could catch at Sanford and Orange City. Could have sold ten times as many if we could have caught them. In the winter of 1876 I caught, on an average, 200 shad per night, with a 300-foot net, 20 meshes, $2\frac{1}{2}$ inch mesh, rigged 3 meshes to a 5-inch span. Shad have gradually decreased since, and last winter I fished a 400-foot net, 25 meshes deep, $2\frac{1}{4}$ inch mesh, rigged to 3 meshes on a 4-inch span. My net was rigged to catch fish and she did catch them, except shad, from a 5-inch herring up to 40 pound catfish and gars.

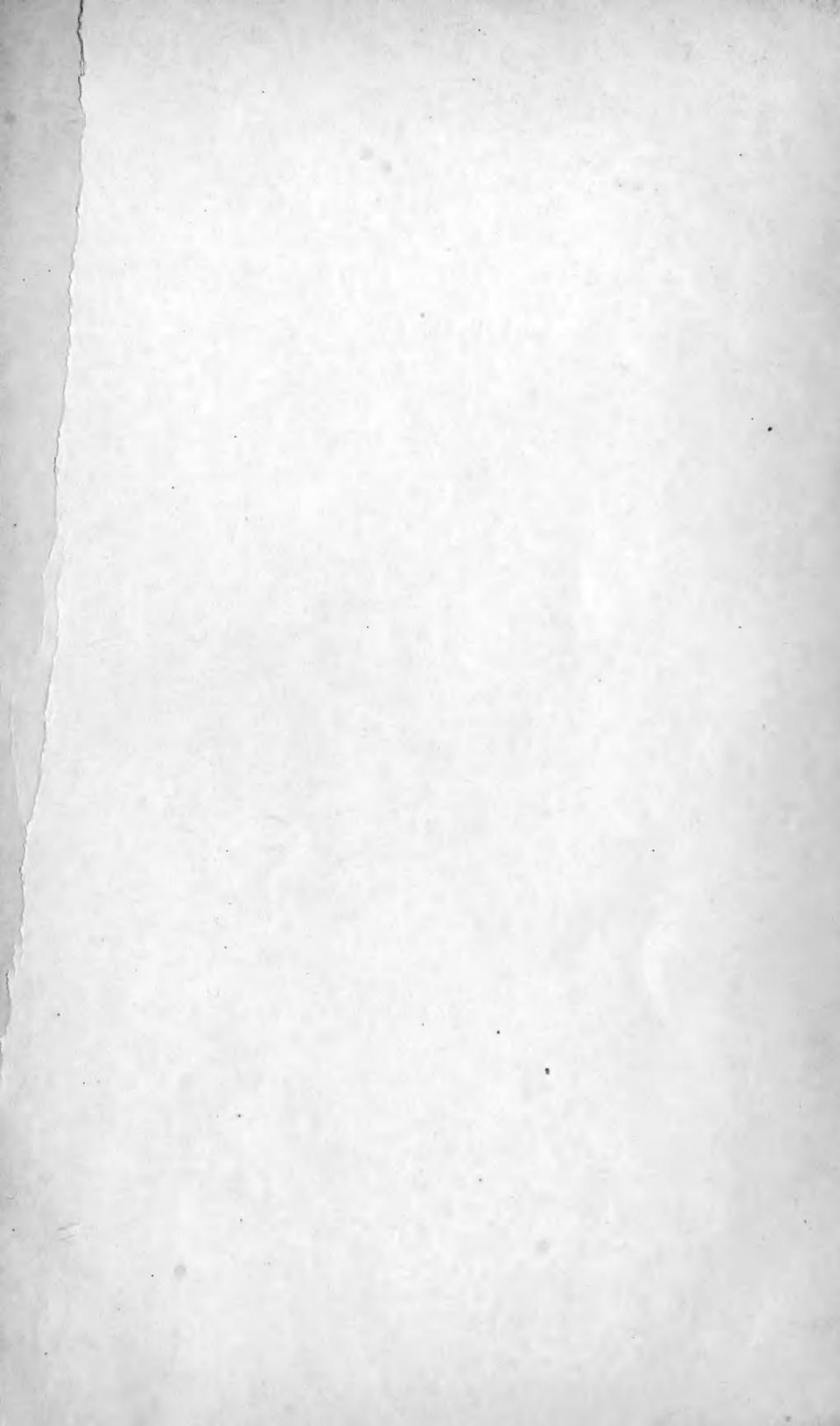
SORRENTO, FLA., *June 5, 1882.*

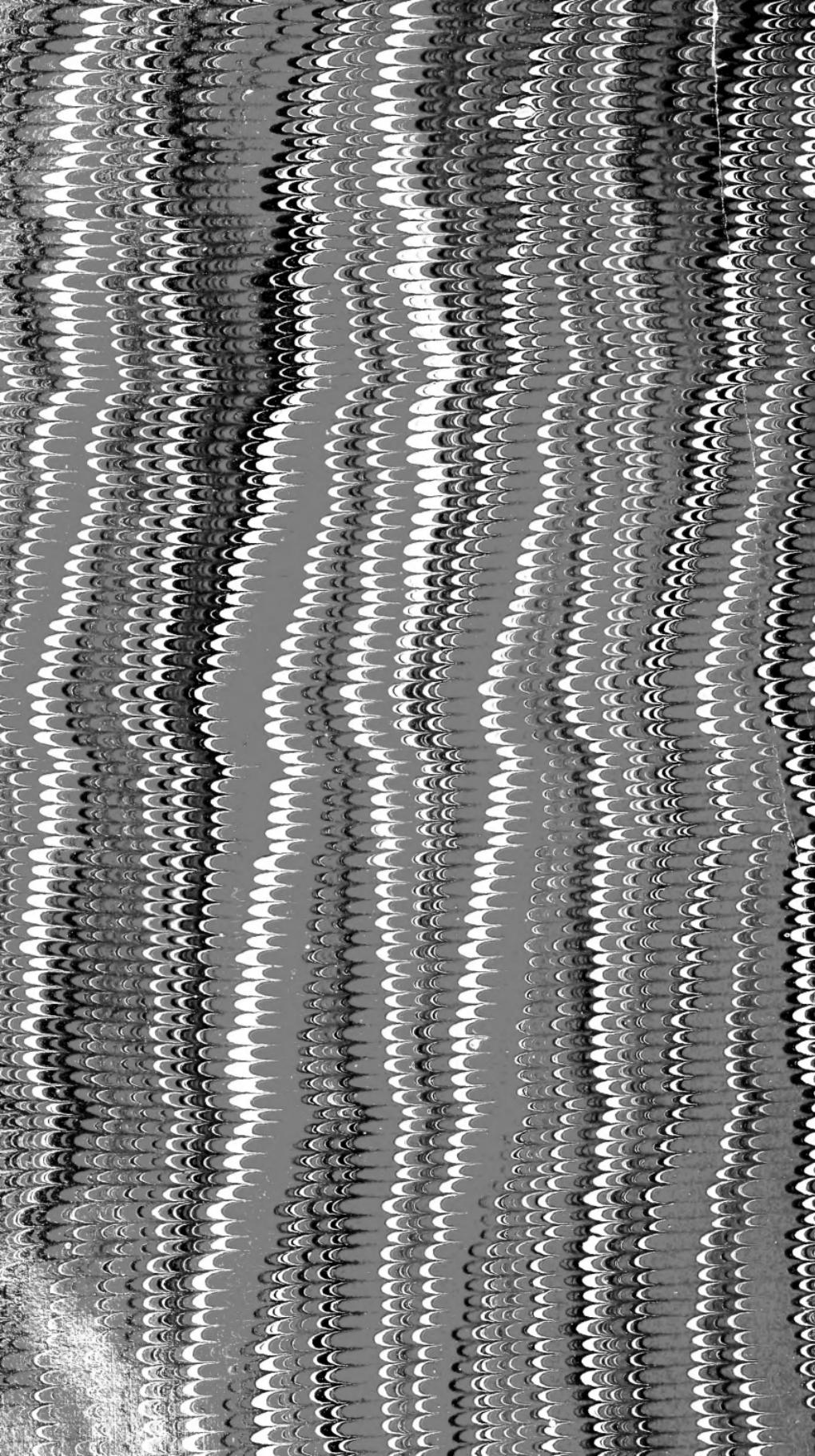


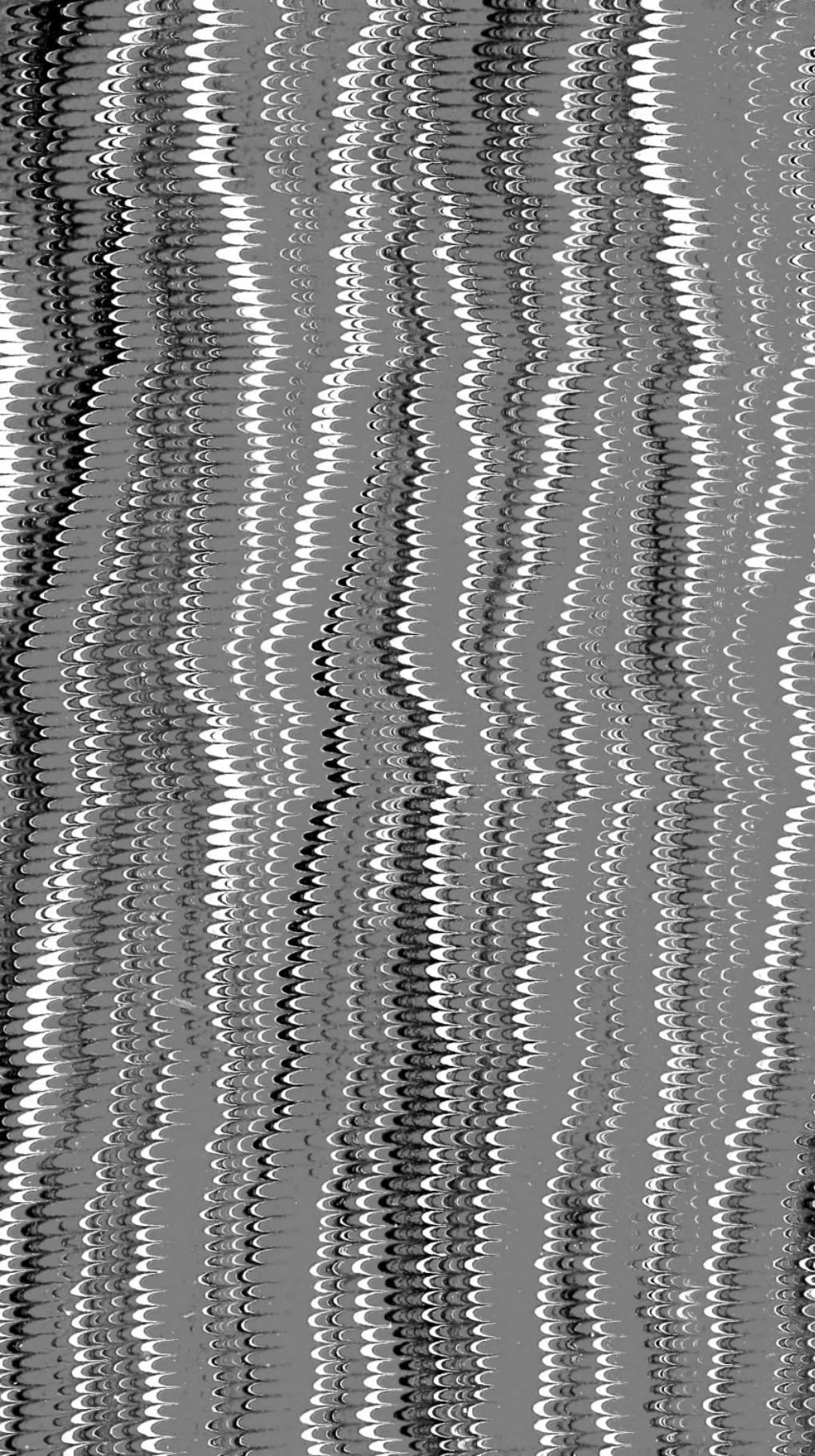












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